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# Trucks, Trains, or Pipelines – The Best Way to Transport Petroleum



By **Brian Westenhaus**

Posted on Tue, 13 August 2013 22:18 | 1

The U.S. is the most fully developed petroleum transport nation – we have crude oil, natural gas, gasoline, and diesel and jet fuel in transit 24/7/365 – mostly in pipelines. Lives lost are rare and environmental damage while awful at leak locations is a tiny amount of the total product moved.

The horrible truth, and one might pray for the souls lost last month in Quebec, is train transport is far more dangerous. [The Quebec train disaster killed at least 38 people, and counting.](#) No pipeline failure has ever come close to this level of human death and suffering.

Even more dangerous is truck transport. It's a bit amazing there aren't more big stories, but trucks carry comparatively small loads compared to trains, and are involved at some point in almost all the gallons delivered to consumers. The personal injuries from truck accidents are more diffuse than trains, but add up to more accumulated injuries and deaths. Truck + petroleum products and injury or death accidents are fairly common.

These three transport modes carry almost all the fuels we use. Spilling a three thousand gallon semi-trailer of fuel is quite a problem, spilling a row of tank cars with petroleum capacities ranging from about twenty thousand to over sixty thousand gallons is a different problem.

A Top Quality US Made Crude Oil Tank Car that holds about 32,000 gallons. Image Credit: American Railcar Industries.

But a leaking pipeline is whole other kind problem.

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Most pipeline leaks start very small, usually from corrosion eating away from the outside. A mechanical piercing almost always reveals the new leak. Most all leaks are eventually found. Just comparing meters at the ends of a pipe section can reveal a problem. Then there is the product lost and the clean up expenses that all spills entail.

[According to a recent report](#) from the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration, the majority of leaks are smaller but can persist for months or even years, and those that are even reported are generally done so by people who have stumbled upon them by accident.

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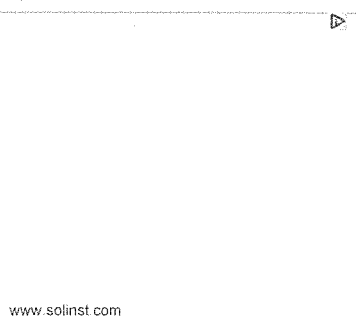
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	PRICE	CHG	CHG%
WTI Crude	▲ 34.75	+0.35	+1.02%
Brent Crude	▲ 37.05	+0.25	+0.68%
Ethanol	▼ 1.350	-0.018	-1.32%
Natural Gas	▼ 1.671	-0.071	-4.08%
Gasoline	▲ 1.3085	+0.0050	+0.38%
Heating Oil	▲ 1.1112	+0.0117	+1.06%
Gold	▲ 1240.8	+10.0	+0.81%

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Pipeline leaks that get noticed by the public first are about a quarter (23%) of the leaks reported, followed by operators and their contractors at 19%. Specialized leak detection systems catch 12%. "Other" and "Blank" total 20%. Air patrols catch 5%, controllers 5%, ground patrols by operators 2%. Emergency responders turn in 7% and parties that cause the accident 6%. Various leak tests offer only 1%. That's the U.S. totals for Jan 2010 to July 2012 of hazardous liquids.

OK, a little reality check. A typical crude oil tank car might be 32,000 gallons. A crude oil train could be a 100 or 100s of cars, say 100 for 3,200,000 gallons. [The terrible nasty pipeline crude spill](#) in Arkansas was estimated at a total of 80,000 gallons escaping during the 45 minutes that it took for the leak to be detected and then stopped. About 2 ½ railcars worth.

At Lac-Megantic, Quebec "several" rail cars carrying oil derailed and caught fire at about 1:15 a.m. local time on July 6, forcing the evacuation of 2,000, killing 38 so far and many more injured still to recover.

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The Washington-based Association of American Railroads said in a report this year the rate of hazardous-material spills by railroads is about 2.7 times higher than pipelines. The cost for rail transport is about three times higher than pipelining.

So what about the leak matter the pipeline opponents scream about?

The current leak detection technology is called "Pigging". The "Pigs" are inspection gauges that can do a variety of maintenance operations on a pipeline – from inspection to cleaning – without stopping the pipeline's flow. The first "pigs" were used strictly for cleaning and they got their name from the squealing noise they emitted while traveling through the pipeline. The current generation of "smart pigs" can detect corrosion in the pipeline and are thus relied on for leak detection.

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Still, the current systems and technologies only detect 50% of leaks. Big leaks like the one in Arkansas and another a few years ago in Kalamazoo only add up to about 10% of leaked material. Little leaks make up the other 90% and the leaking cars and trucks of the nation utterly dwarf that volume.

The bad news is there isn't a [lot of new technology](#) to apply, operator's attitudes leaves a lot to be desired, some of the big operators remain skeptical of new pipeline leak detection systems, as their cost-saving applications are as yet unproven, many have a hard time believing the new technology works and have to see proof through customer field tests, which, surprisingly, are currently ongoing.

The facts are rather – well – Stark. Pipelines are lower cost, safer and less damaging than all kinds of motor transport. The environmentalists would be more credible if they had a history and reputation for clearing up the black oil slick in the middle of America's highway lanes where far more oil is deposited with little notice.

In the end though, it boils down to lives, suffering and safety. The economy, our standard of living, the health and welfare of our families and communities depend on a supply of crude oil.

The Keystone XL pipeline is stopped lacking just one person's action. As that person is a lawyer we might wonder what it's called when someone purposefully chooses to endanger others lives over safer alternatives.

By. Brian Westenhaus

Source: [Trucks Trains or Pipelines](#)

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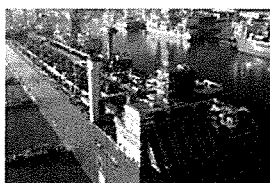


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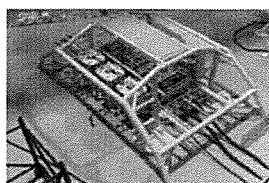


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Steve on November 25 2013 said:

Great info. I like the idea of pipelines for oil transport because unlike older rail lines, pipelines can (should) be routed away from particular human spaces that accidents could very well ruin (like aquifers or housing divisions for starters - like what happened in Mayflower Arkansas this year with the pipeline and houses built in close quarters).

It's sad that leak detection systems only catch 12% of leaks. Seems like this technology needs to go a long way to improve. I think what is needed here is not only better detection for leaks but a better concept of a pipeline itself...one that has some sort of leak catcher structure or a "pipeline within a pipeline," so our ecosystem doesn't have to catch spills.

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